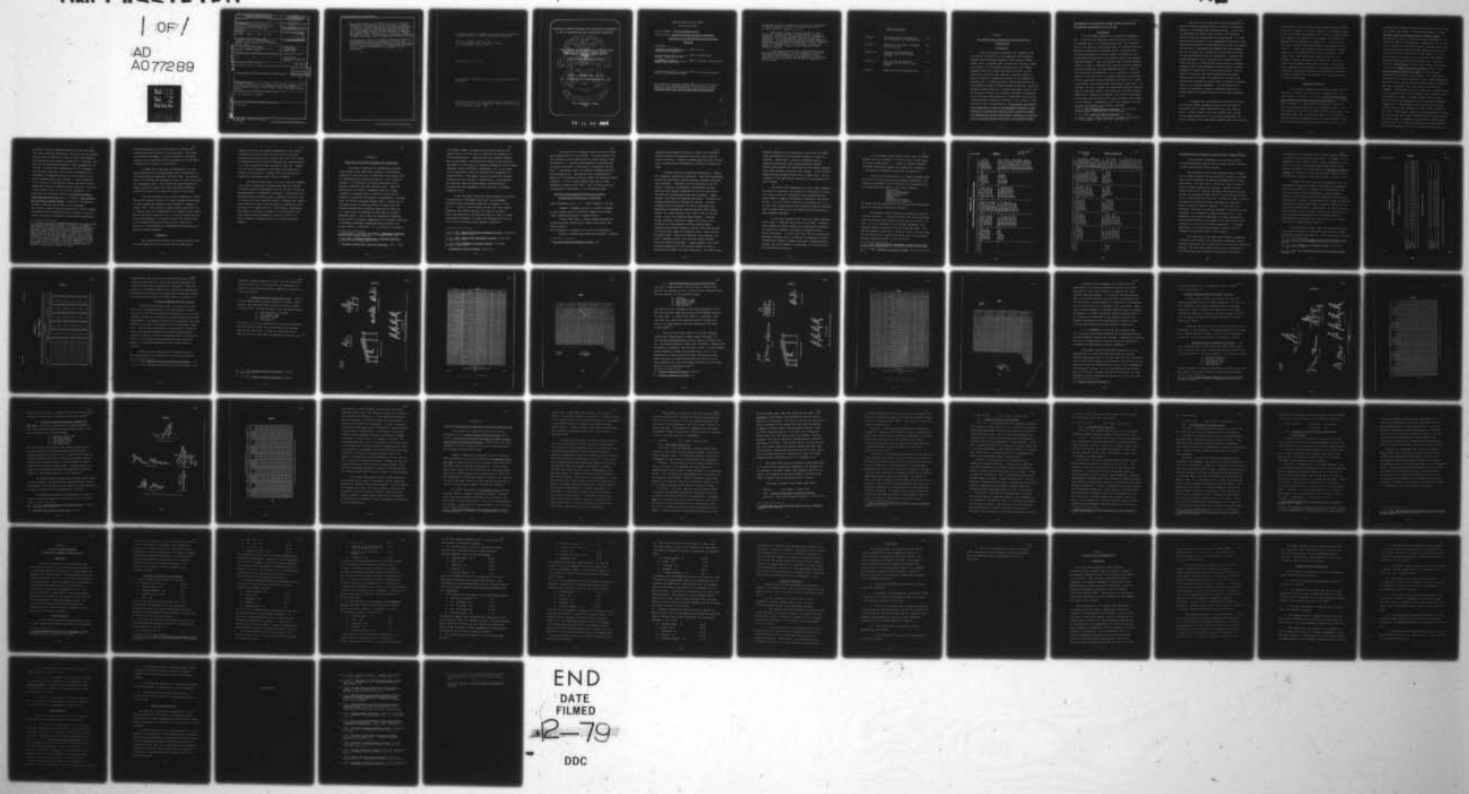
AD-A077 289 ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS F/G 6/14
ACCEPTABLE PHYSICAL STANDARDS FOR SATISFACTORY PERFORMANCE IN T--ETC(U)
JUN 79 R A DABBIERI

UNCLASSIFIED NL

| OF |
AD
A077289



END
DATE
FILMED
12-79
DDC

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER
2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER

4. TITLE *(and Subtitle)*
Acceptable Physical Standards for Satisfactory Performance in the 12B Engineer Military Occupational Speciality.

5. TYPE OF REPORT & PERIOD COVERED
Final Report, 8 June 1979

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
DABBIERI, Ronald A., MAJ, CE, USA

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Student at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS
U.S. Army Command and General Staff College ATTN: ATSW-SE

12. REPORT DATE
8 June 1979

13. NUMBER OF PAGES

14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*
Ronald A. Dabbieri

15. SECURITY CLASS. *(of this report)*
Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*
Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES
Master of Military Art and Science (MMAS) thesis prepared at CGSC in partial fulfillment of the Masters Program requirements, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027.

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*
12B MOS Physical Standards

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*
See reverse.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

90-3664

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

This study attempts to determine what is the acceptable standard of body strength, physical stamina, endurance and physical fitness required for satisfactory performance in the 12B (Engineer) Military Occupational Speciality. The investigation examines current regulatory standards, and analyzes tasks required by the 12B Soldier's Manual and Engineer ARTEP. Additionally, a survey was conducted to gather subjective data for experienced Engineer Officers.

Investigation reveals that current standards are ambigious and inadequate. Further examination indicates that quantifiable standards can be developed so that individuals could be tested and determined to be physically qualified prior to award of the 12B MOS or assignment to 12B positions.

Acceptable Physical Standards for Satisfactory Performance in the 12B Engineer Military Occupational Speciality

Ronald A. Dabbieri, MAJ, CE, USA
U.S. Army Command and General Staff College
Fort Leavenworth, Kansas 66027

Final report 8 June 1979

A Master of Military Art and Science thesis presented to the faculty of the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027

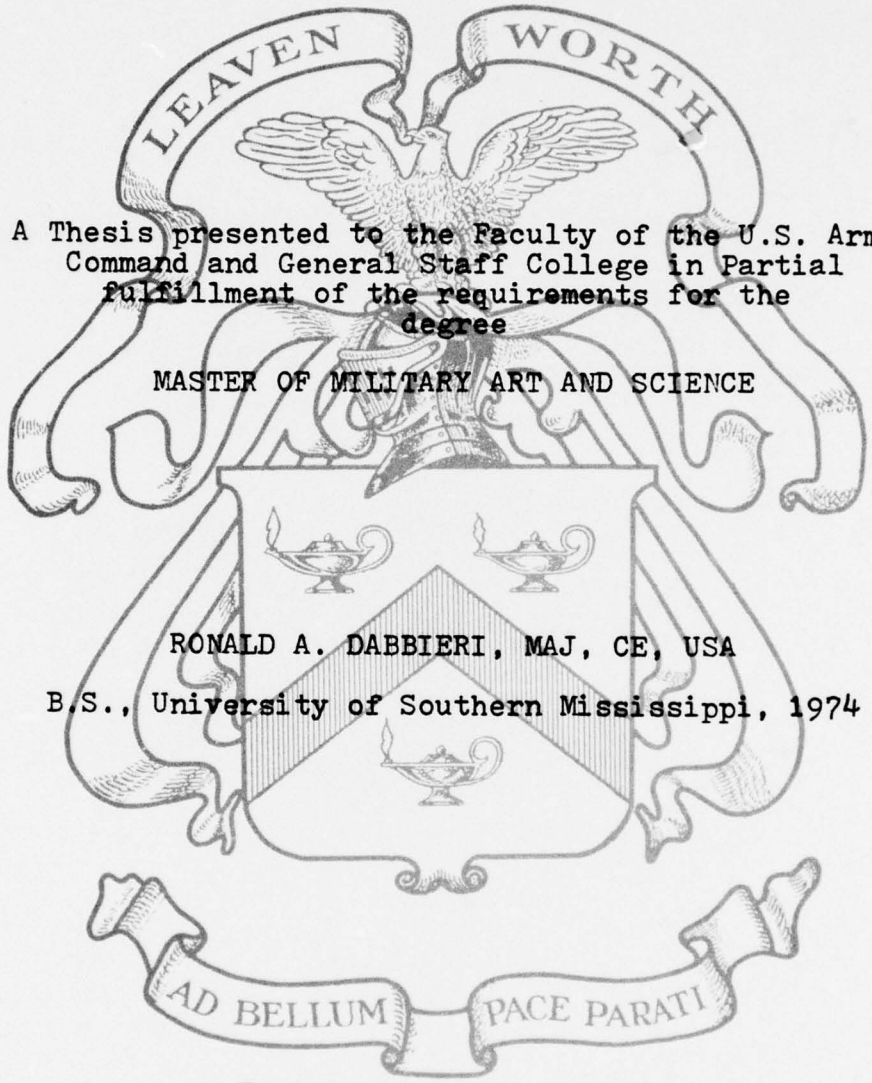
ACCEPTABLE PHYSICAL STANDARDS FOR SATISFACTORY PERFORMANCE IN THE 12B ENGINEER MILITARY OCCUPATIONAL SPECIALITY

A Thesis presented to the Faculty of the U.S. Army Command and General Staff College in Partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

RONALD A. DABBIERI, MAJ, CE, USA

B.S., University of Southern Mississippi, 1974



Fort Leavenworth, Kansas
1979

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of candidate: RONALD A. DABBIERI, MAJ, CE

Title of thesis: Acceptable Physical Standards for Satisfactory Performance in the 12B Engineer Military Occupational Speciality

Approved by:

William W. Yaun, LTC, CE, USA, Research Advisor

Anthony J. McKee, LTC, CE, USA, Member, Graduate Faculty

Walter S. Towns, MAJ, USAR, Member, Consulting Faculting Faculty

Accepted this 22nd day of June 1979 by [illegible], Director, Graduate Degree Program.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ACCEPTABLE PHYSICAL STANDARDS FOR SATISFACTORY PERFORMANCE IN THE 12B ENGINEER MILITARY OCCUPATIONAL SPECIALITY, by Major Ronald A. Dabbieri, CE, USA.

This study attempts to determine what is the acceptable standard of body strength, physical stamina, endurance, and physical fitness required for satisfactory performance in the 12B Engineer Military Occupational Speciality. The investigation examines current regulatory standards, and analyzes tasks required by the 12B Soldier's Manual and Engineer ARTEP. Additionally, a survey was conducted to gather subjective data from experienced Engineer officers.

Investigation reveals that current standards are ambiguous and inadequate. Further examination indicates that quantifiable standards can be developed so that individuals could be tested and determined to be physically qualified prior to award of the 12B MOS or assignment to 12B positions.

TABLE OF CONTENTS

CHAPTER I

THE NATURE OF THE PROBLEM AND THE METHODOLOGY OF INVESTIGATION

INTRODUCTION

From my experience commanding four companies, the most recent a 25 month tour as Commander, 518th Engineer Company (Combat)/Brigade Engineer, 193d Infantry Brigade (Canal Zone), it appears that a substantial minority (almost ten percent) of the soldiers enlisted in the 12B (Combat Engineer) Military Occupational Speciality (MOS) do not possess the requisite body strength, physical stamina or physical fitness to adequately perform in this physically demanding MOS. Although strength, stamina and fitness can be increased through a regular program of exercise, unless the enlistee enters service at a minimum acceptable level he will not be able to achieve the necessary standard by completion of the 16 weeks training period (8 weeks Basic Training and 8 weeks Advanced Individual Training) or the shorter 12 week One-Station Unit Training period. The question this thesis will investigate is what is the acceptable standard of body strength (to perform MOS required tasks), physical stamina (to repetitively perform those tasks), endurance (to participate in sustained combat operations), and physical fitness

(as measured by the Physical Fitness Tests) required for satisfactory performance in the 12B MOS.

THE PROBLEM

The 12B Combat Engineer has a physically demanding job. He has to be an Engineer first performing up front as an important part of the combined arms team. His contribution to the team as a combat multiplier is fourfold: mobility (destroying obstacles for maneuver units); countermobility (building obstacles to slow the enemy); survivability (preparing defensive positions for friendly forces); and general engineer support.[1] Also, the Engineer has a stated secondary mission to fight as Infantry which results from the necessity to secure worksites, directed reorganizations to Infantry due to critical circumstances, or as a reaction to directed threats.[2] The 12B is not the glamour Engineer MOS associated with the operation of heavy equipment (62 series) but rather is the dirty, back breaking work using mainly hand tools. In training, the 12B is taught only rudimentary engineer subjects such as knots and rigging, road obstacles, land mine warfare, demolitions, bridging, and engineer tool use and maintenance. At the same time he acquires the basic military skills common to all soldiers: marksmanship, drill and ceremony, military justice, road marches, and physical training.[3]

1 U.S. Army, Engineer Combat Operations, FM 5-100 Final approved draft, September 1978, iii (preface).

2 U.S. Army, Engineer Combat Operations, D-1, D-2.

3 Abbott, Steve "Combat Engineers", SOLDIER (The Official U.S. Army magazine), May 1978, Vol. 33, No. 5, 10.

From this short discription of the 12B training, it should be readily apparent that not everyone is physically capable of performing these strenuous duties. By the time an individual has reached the unit level, the Army has already incurred a considerable training expense. If after an on-the-job evaluation it is determined the soldier is not qualified physically, the alternatives are either to reclassify him into a less physically demanding MOS and reassign him, or to allow him to continue in the 12B MOS and accept a less than desirable level of performance. Although both these alternatives offer solutions, the optimum solution would have been a better defined, more effective screening process in which the substandard soldier would be properly assigned to an MOS prior to the training period. The end result of this more efficient screening and assigning process should be better unit morale and individual job satisfaction because all soldiers will be capable of performing up to the desired standards. The Army should also realize a substantial savings in training dollars with a better quality 12B soldier arriving in the Combat Engineer Unit.

It appears that the traditional criterion for entry into certain Career Management Fields (CMF) and MOSs is antiquated and no longer appropriate as a sole limiting factor. Recent "Women in the Army" studies have touched on the inappropriateness of the existing regulations but to date no research into replacement standards has been published.

Additionally, with the current trend towards opening more and more MOSs to women, it is only a matter of time before restrictions are dropped for assignment to all MOSs. A recent Federal Court decision has resulted in the removal of restrictions against and the assignment of women to U.S. Naval ships of the Line, and women have been satisfactorily serving aboard armed U.S. Coast Guard vessels for over two years. Although women are not yet authorized to serve in Catagory I, Army combat units, some traditionally male MOSs such as Air Defense Artillery (16 series) and Senior Field Artillery (13Z) have had women reclassified into them. This should further emphasize the necessity to reevaluate the existing traditional "male only" criterion and substitute a fair and equitable standard that would apply to all soldiers desiring to enter the 12B field.

RESEARCH METHODOLOGY

For a cursory examination of the traditional criteria currently in effect, it is necessary to examine five Army publications. The first, AR 611-201, Enlisted Career Management Fields and Military Occupational Specialities, 1 October 1973, in addition to describing the speciality, states the MOS is open to males only and that a Physical Profile Series (as defined by AR 40-501) of 111121 (PULHES) is required. This regulation means that an applicant must be in good medical condition with the exception that he can wear glasses. These are the requirements for initial entry into the MOS, but the

criteria may be somewhat relaxed for retention after the MOS has already been awarded. The second regulation, AR 600-9, The Army Physical Fitness and Weight Control Program, 30 November 1976, sets the height and weight standards for the Army which apply to all personnel, regardless of MOS or CMF. Here it should be noted that different standards apply under initial enlistment regulations and retention regulations so an enlistee can be eligible for initial entry but as soon as he comes on active duty he does not meet the retention standards under existing medical regulations. Finally, AR 350-1, Army Training, 25 April 1975; Chapter 29, Section II, FM 21-20, Physical Readiness Training; and FM 35-20, Physical Fitness Training for Women, set the physical standards for personnel in the service. But rather than deliniating the physical standards by MOS, these regulations specify only the type of physical fitness test an individual must pass according to the type of unit to which he is assigned. The Advanced Physical Fitness Test is administered to all eligible active Army personnel under 40 years of age and assigned to Combat or Combat Support TOE/MTOE units, while the much less demanding Staff and Specialist Physical Fitness Test is administered to all active Army personnel under 40 years of age assigned to Combat Service Support or TDA units. Additionally, there is a Minimum Physical Fitness Test (Voluntary) which may be administered to personnel over 40 years of age. An example of the effect of these regulations is that a 75B Company Clerk/Typist (an Administrative MOS) when assigned to an Infantry or Engineer unit would be

required to take the Advanced Physical Fitness Test while this same individual reassigned to the Post Adjutant General Section would be required to take the much less demanding Staff and Specialist Physical Fitness Test. Therefore, what would be the appropriate physical fitness standard for the 75B MOS? Although these regulations set the framework, a more detailed analysis of the current standards will be undertaken in subsequent chapters and an attempt will be made to further define this problem. A basic assumption of this thesis is that physical fitness standards and the appropriate tests to determine fitness should be a function of the soldier's MOS, not the unit of assignment. By analyzing various sources such as The Soldier's Manual - Combat Engineer (MOS 12B) and the "5-series" Army Training and Evaluation Program (ARTEP) a "yardstick" for physical strength, endurance and fitness can be developed.[4] Additionally, Engineer Majors attending the 1978-79 Command and General Staff College class were surveyed in order to obtain a subjective evaluation of performance requirements

---

4 An example of how a strength requirement for a particular task can be analytically quantified would be to examine construction of a Bailey Bridge. A thorough examination of this task would reveal that the most physically demanding subtask is the 6-man carry of the 577 pound Bailey Panel. Each individual in the crew would be required to carry in excess of 96 pounds for each panel carried, and a bridge constructed to its maximum length would require each crew to carry 63 panels (2 crews, 126 panels per Bailey Bridge Set). This crew breakdown is that recommended by FM 5-34 for construction of one set of bridge. Therefore, to be a successful 12B in this situation, an individual must be capable of carrying 96 pounds, 63 times.

from the prospective of a cross section of officers who possess varied but extensive troop experience. From these two research techniqaes, it will be possible to determine proper levels of physical ability required for the effective utilization of a soldier in the 12B MOS.

Although this study will be restricted to the 12B Combat Engineer MOS, the methodology would be applicable in performing similar evaluations for other MOSs. The restriction to the 12B MOS was necessary in order to limit the subject to a manageable level. Also, incentives and inducements to attract qualified people into these physically demanding specialities will not be within the scope of this study.

Very few units have only one MOS represented on their MTOE so the question arises as to what standards should apply to these support MOS personnel when assigned to Catagory I, Combat Units. This question is particularly significant for an Engineer unit as a reorganization to Infantry could require the use of many of these 62, 35, 51, 75 and possibly even 94 series MOS personnel. As stated earlier, this problem will not be examined during the course of this study but it should be a consideration for commanders when designing unit physical fitness programs.

CONCLUSION

This chapter has introduced the problem and described the methodology which will develop each of these areas.

Chapter Two will be an indepth examination of the current standards for initial entry into the 12B MOS and other pertinent publications while Chapter Three will be a review of applicable ARTEPs, Soldier's Manuals, and other documents to extract and analyze tasks required of that MOS. Chapter Four will be a discussion of the survey conducted and an analysis of the results. Chapter Five will describe and discuss the conclusions drawn from the research.

The final product which will result from the research will include perceptions of experienced Engineer officers concerning physical requirements for the 12B MOS. as well as recommendations for acceptable standards. Although some rudimentary testing techniques may be suggested, detailed tests to simulate and test required strength, endurance and stamina requirements will have to be developed by experienced human engineers at a HumRRO activity. Additionally, determining what degree of testing is feasible to be performed at an Armed Forces Entrance Examination Station (AFEES) will require extensive coordination with the Army Recruiting Command.

CHAPTER II

EXAMINATION OF CURRENT STANDARDS AND REGULATIONS

According to Secretary of Defense Harold Brown's latest report, more than forty percent of the personnel enlisting in the Army will be eliminated from service prior to completing their initial enlistment.[1] For a number of reasons, it is difficult to develop statistics on the specific causes of this high attrition rate. Under the provisions of AR 635-200, discharge authority in many instances is delegated down to battalion level with no approval or reporting requirements to Department of the Army. Under the Trainee Discharge Program (TDP) a trainee can be discharged while in training because he cannot meet the minimum standards for successful completion of training, i.e. cannot pass the appropriate Army Physical Fitness Evaluation Test.[2] Also, under the Expeditious Discharge Program (EDP) a battalion commander has the approval authority to discharge substandard performers whose potential for further service is doubtful.[3] It is difficult to determine

---

1 Harold Brown, Secretary of Defense, Department of Defense Annual Report Fiscal Year 1979, (2 February 1978), 330.

2 U.S. Army, Personnel Separations - Enlisted Personnel, AR 635-200, (21 November 1977), 5-15.

3 Personnel Separations - Enlisted Personnel, 5-13 - 5-14.

the accurate number of unqualified personnel serving in a specific MOS due to the lack of reporting requirements for MOS reclassification. Under the Enlisted Personnel Management System (EPMS), reclassification authority for enlisted personnel (E-5 and below) not centrally managed by the Military Personnel Center (MILPERCEN), Washington, D.C., is delegate to the installation level for installations commanded by a General Officer. Here again, specific reasons for reclassification are not reported.[4] Additionally, a test program has recently begun in Europe whereby reclassification authority has been delegated all the way down to battalion commander level.

Under the Regular Army Enlistment Program (AR 601-210), an applicant for enlistment "must meet the procurement physical fitness standards prescribed in Chapter 2, AR 40-501."[5] A review of that document reveals that this chapter addresses only medical fitness, not physical fitness.[6] Under this regulation, an individual who is 5 feet in height and weighs 100 pounds is eligible for enlistment in the 12B MOS if he is otherwise in good medical condition.[7]

---

4 U.S. Army, Enlisted Personnel Management System, AR 600-200, (C59, 15 July 1978), 2-10.

5 U.S. Army, Regular Army Enlistment Program, AR 601-210, (18 May 1972), 4-2.

6 U.S. Army, Standards of Medical Fitness, AR 40-501, (December 1960), Ch 2.

7 Standards of Medical Fitness, Table A3-1.

The problem is to determine what the current enlistment standards are for the 12B MOS. AR 600-200 states that "the physical profile series does not always reflect every prerequisite... . physical requirements for some MOSs may go further than what is reflected in the physical profile code."[8] Apparently there is no written statement defining those prerequisites. The problem will be examined with emphasis on the physical fitness, weight and physical profile standards. It will become apparent that many of these standards contradict each other. Each of these areas will be addressed in some detail in the following pages.

Enlisted Career Management Fields and Military Occupational Specialities - AR 611-201

Career Management Field - 12 Combat Engineer MOS 12B

"Summary - Commands, serves, or assists as member of team, squad, section or platoon engaged in providing combat engineering support to combat forces."

"Duties: MOSC 12B10 - Assists combat engineers by performing combat construction, combat demolitions, and related duties."

The following is a synopsis of the 12B job discriptions:

Assists in constructing roads and airfields. Emplaces

---

8 Enlisted Personnel Management System, 2-3.

fabricated and expedient culverts, endwalls and headwalls. Builds permanent and expedient roads and clears road and airfield surfaces. Assembles prefabricated airfield surfaces such as landing mats and membranes; constructs bypasses and fords.

Performs Theater of Operation construction. Handles and transports construction materials. Excavates foundations, builds and places and finishes concrete; emplaces prefabricated buildings. Constructs field fortifications such as bunkers, shelters, emplacements, trenches and foxholes. Constructs and removes obstacles such as wire and abatis. Emplaces and breaches minefields and boobytraps. Loads, unloads, calculates and emplaces explosives. Performs river crossing operations by bridging and rafting. Prepares bridging sites and performs all duties associated with assembling, disassembling, and maintaining Army bridging assets (i.e. Light Tactical Raft, M4T6, Class 60, Bailey Bridge, trestle and expedient wood bridges). Conducts bridge, material, demolition target, mine field, river crossing, and other engineer related reconnaissance. Operates and maintains numerous engineer tools and vehicles to include hand, power and pneumatic tools, light vehicles and dump trucks. Erects boom derricks, rope bridges, gin poles, tramways, shears, and block and tackle systems utilizing rigging techniques. Conducts assault boat river crossing operations and boat reconnaissances as well as maintains and repairs the boats and motors. The 12B10 Combat

Engineer soldier is also expected to perform the following tasks associated with his secondary mission to fight as Infantry: Participate in tactical operations such as assaulting objectives, and conducting ambush patrols. Maintain and qualify with individual and crew served weapons, throw hand grenades, and employ riot agents. Utilize tactical communications equipment and be able to read a map. This is a summary of the many duties expected to be performed by the 12B10 soldier.

The 12B20 is the Sergeant (E-5) level Combat Engineer MOS and he is expected to be capable of performing all duties of a 12B10 as well as "perform as a team leader/assistant squad leader in combat, construction, demolition and related duties." He is not only a 12B10 but a supervisor and it is at this level he acquires the more detailed engineer knowledge such as being familiar with the operation and maintenance of heavy engineer equipment.

At the Staff Sergeant (E-6) level the Combat Engineer must be able "to perform the duties of the 12B20. Serves as squad leader; as section leader; as reconnaissance sergeant; as construction foreman; as advisor to supported units; ... and as instructor." It is at this level that his engineering knowledge broadens and he is expected to understand vertical construction; design of simple structures, bridges, drainage systems, and other systems; and drawings, job specifications and construction schedules.

At the Sergeant First Class (12B40) level the Combat Engineer has fully matured. He "must be able to perform all the duties of the 12B30 ... . Serves as Platoon Sergeant; Assistant Operations Sergeant; as construction inspector; ... as advisor to supported units; and as instructor."

From this job discription it is readily apparent that the 12B MOS is both physically and mentally demanding. Additionally, according to this regulation the following civilian occupations are related to the Combat Engineer:

Truck Driver
Blaster (Construction)
Construction Worker
Timber Cutter
Laborer
Pier Facility Worker
Construction Supervisor

All these civilian specialities obviously require outstanding levels of physical fitness and endurance.[9]

The physical profile required for entry into this MOS is 111121 (Table 1). It should be noted that this requirement actually addresses only medical fitness and not physical fitness. It is not addressed to the fitness, endurance, and strength needed to perform in the MOS described above. The physical capacity description (column P, Table 1) is too vague and generalized and therefore not of any use to the personnel manager assigning soldiers to the 12B MOS.[10]

---

9 U.S. Army, Enlisted Career Management Fields and Military Occupational Specialities, AR 611-201,(2 Jan 78), 3-12-5 to 8.

10 U.S. Army, Standards of Medical Fitness, AR 40-501 (Dec 60) Ch 2.

★APPENDIX VIII

PHYSICAL PROFILE FUNCTIONAL CAPACITY GUIDE

TABLE 1

Profile serial	P Physical capacity	U Upper extremities	L Lower extremities	H Hearing—Ears	E Vision—Eyes	S Psychiatric
1	Good muscular development with ability to perform maximum effort for indefinite periods.	No loss of digits, or limitation of motion; no demonstrable abnormality; able to do hand-to-hand fighting.	No loss of digits, or limitation of motion; no demonstrable abnormality; be capable of performing long marches, standing over long periods.	Audiometer average level each ear not more than 15 db @ 500, 1000, 2000 cps. Not over 40 db at 4000 cps.	Uncorrected visual acuity 20/200 correctible to 20/20, in each eye.	No psychiatric pathology. May have history of a transient personality disorder.
2	Able to perform maximum effort over long periods.	Slightly limited mobility of joints, muscular weakness, or other musculoskeletal defects which do not prevent hand-to hand fighting and do not disqualify for prolonged effort.	Slightly limited mobility of joints, muscular weakness or other musculoskeletal defects which do not prevent moderate marching, climbing, running, digging, or prolonged effort.	Audiometer average level not more than 20 db @500, 1000, 2000 cps and 50 db at 4000 cps in both ears, or 15 db at 500, 1000, 2000 cps and 30 db at 4000 in better ear.	Distant visual acuity correctible to 20/40–20/70, 20/30–20/100, 20/20–20/400.	★May have history of recovery from an acute psychotic reaction due to external or toxic causes unrelated to alcholic or drug addiction. Individuals who have been evaluated by a physician (psychiatrist) and found to have a character and behavior disorder will be processed through appropriate administrative channels.

TABLE 1 (Continued)

Profile serial	P Physical capacity	U Upper extremities	L Lower extremities	H Hearing—Ears	E Vision—Eyes	S Psychiatric
3 ----------	Unable to perform full effort except for brief or moderate periods.	Defects or impairments which interfere with full function requiring restriction of use.	Defects or impairments which interfere with full function requiring restriction of use.	May have hearing level at 20 db with hearing aid by speech reception score, or acute or chronic ear disease not falling below retention standards.	Uncorrected distant visual acuity of any degree which is correctible not less than 20/40 in the better eye or an acute or chronic eye disease not falling below retention standards.	Satisfactory remission from an acute psychotic or neurotic disorder which permits utilization under specific conditions (assignment when outpatient psychiatric treatment is available or certain duties can be avoided).
4 ----------	Below Retention Standards.	Below Retention Standards.	Below Retention Standards.	Below Retention Standards.	Below Retention Standards.	Below Retention Standards.
Factors to be considered.	Organic defects, age, build, strength, stamina, weight, height, agility, energy, muscular coordination, function, and similar factors.	Strength, range of motion, and general efficiency of upper arm, shoulder girdle and back, including cervical, thoracic, and lumbar vertebrae.	Strength, range of movement, and efficiency of feet, legs, pelvic girdle, lower back.	Auditory acuity, and organic disease of the ears.	Visual acuity, and organic disease of the eyes and lids.	Type, severity, and duration of the psychiatric symptoms or disorder existing at the time the profile is determined. Amount of external precipitating stress. Pre-disposition as determined by the basic personality makeup, intelligence, performance, and history of past psychiatric disorder impairment of functional capacity.

2-8

The Army Physical Fitness and Weight Control Program AR 600-9

This regulation addresses both the Army physical fitness/testing requirements and the weight control standards, as both subjects are closely related.

The objectives of the Army Physical Fitness Program are to develop soldiers who are physically capable of performing in both a peacetime or combat environment and to sustain good health. From the time an individual enters the service physical fitness training is stressed. Trainees in Basic Combat Training and Advanced Individual Training are required to pass the appropriate Army Physical Fitness Evaluation Test prior to graduating from training. Trainees who fail to achieve the acceptable physical fitness standards are required to receive intensive remedial training. If they still are deficient, they must be recycled, assigned to special training companies, or considered for administrative action. This regulation also requires commanders to conduct appropriate testing twice annually in accordance with FM 21-20 (for male personnel) or FM 35-20 (for female personnel). A thorough explanation of the particular physical fitness tests and standards is contained later in this chapter.

The objectives of the Army Weight Control Program are to maintain each soldier at a weight which presents a smart, soldierly appearance and is best suited to allow him to optimally perform. The individual soldier must accept responsibility for maintaining this acceptable body weight and soldierly

Appearance but here the regulation becomes somewhat ambiguous as to what is an acceptable body weight. An example of this ambiguity is that under AR 600-9, a male, regardless of age who is 70 inches in height may weigh between 123 and 192 pounds (see Table 2)[11]; while under the Standards of Medical Fitness (AR 40-501) a 70 inch man may weigh between 123 and 222 pounds upon initial entry into service (see table 3).[12]

Although the Army places the responsibility for the maintenance of physical fitness, body weight and appearance on the individual, it is incumbent upon commanders at all levels to monitor their subordinates, conduct periodic physical fitness testing, and take appropriate measures when deficiencies are noted. Soldiers who fail to meet the physical conditioning, weight or military appearance criteria are not eligible for reenlistment. Additionally, if this failure to meet standards is due to apathy, lack of self discipline, or other character deficiencies, the individual should be considered for elimination from service prior to the expiration of his current term of service.[13]

Provisions are included under the enlisted personnel separation regulations to administratively eliminate these substandard soldiers from service. Under the Trainee Discharge

---

11 U.S. Army, The Army Physical Fitness and Weight Control Program, AR 600-9, (30 November 1976), 2-1, 3-1, 3-2.

12 U.S. Army, Standards of Medical Fitness, AR 40-501, (December 1960), A3-1.

13 U.S. Army, The Army Physical Fitness and Weight Control Program, 3-2.

APPENDIX
WEIGHT TABLES FOR ARMY PERSONNEL

MALE (Regardless of Age)

Height (inches)	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Weight (pounds):																					
Minimum	100	102	103	104	105	106	107	111	115	119	123	127	131	135	139	143	147	151	153	159	166
Maximum	141	146	150	155	160	165	170	176	181	186	192	197	203	208	214	220	226	232	238	244	250

WOMEN (Regardless of Age)

Height (inches)	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
Weight (pounds):															
Minimum	90	92	94	96	98	100	102	104	106	109	112	115	118	122	125
Maximum	113	117	121	125	130	134	138	142	147	151	156	160	165	170	175

Note. Height and weight data do not include allowances for shoes and other clothing.

APPENDIX III

TABLE OF WEIGHT

Table I. Table of Militarily Acceptable Weight (in Pounds) as Related to Age and Height for Males—Initial Procurement

Height (inches)	Minimum (regardless of age)	*MAXIMUM				
		16–20 years	21–30 years	31–35 years	36–40 years	41 years and over
60	100	158	163	162	157	150
61	102	163	168	167	162	155
62	103	168	174	173	168	160
63	104	174	180	178	173	165
64	105	179	185	184	179	171
65	106	185	191	190	184	176
66	107	191	197	196	190	182
67	111	197	203	202	196	187
68	115	203	209	208	202	193
69	119	209	215	214	208	198
70	123	215	222	220	214	204
71	127	221	228	227	220	210
72	131	227	234	233	226	216
73	135	233	241	240	233	222
74	139	240	248	246	239	228
75	143	246	254	253	246	234
76	147	253	261	260	252	241
77	151	260	268	266	259	247
78	153	267	275	273	266	254
*79	159	273	282	281	273	260
*80	166	280	289	288	279	267

*Applies only to personnel enlisted, inducted, or appointed in Army and enlisted or inducted into Air Force. Does not apply to Navy or Marine Corps enlistees or inductees.

Program (TDP) the Special Court Martial Authority can discharge trainees who fail to meet the minimum standards prescribed for successful completion of training.[14] Under the Expeditious Discharge Program (EDP) a battalion commander can discharge active soldiers who demonstrate substandard performance and whose potential for further service is doubtful.[15]

Physical Readiness Training FM 21-20

Although AR 600-9 and AR 350-1 are the publications that direct the administering of the Army Physical Fitness Testing, FM 21-20 is the publication that explains the physical readiness program for Army males to include specifying testing requirements. The primary objectives of the physical readiness program is to attain and maintain a unit's operational readiness. Only through a combination of proficiency in physical skill, and improved strength and endurance does complete physical readiness to sustain operations under all conditions result. In this manner assigned personnel are physically capable of performing assigned missions during combat or training.

There are seven Army Physical Fitness Evaluation Tests applicable to all segments of the male population and

---

14 U.S. Army, Personnel Separations-Enlisted Personnel, 5-15.

15 U.S. Army, Personnel Separations-Enlisted Personnel, 5-13.

designed to measure physical fitness. For the purpose of this study only two of the tests will be examined as a majority of the Army personnel are required to take one of these two tests.[16]

I. Advanced Physical Fitness Test (APFT): This is the test administered to male personnel in Combat, Combat Support, Advanced Individual Training and Combat Support Training units. The test consists of the following events:

a. Inverted Crawl (40 yards)
b. Run, Dodge & Jump
c. Horizontal Ladder
d. Bent Leg Sit-Up
e. Two-Mile Run

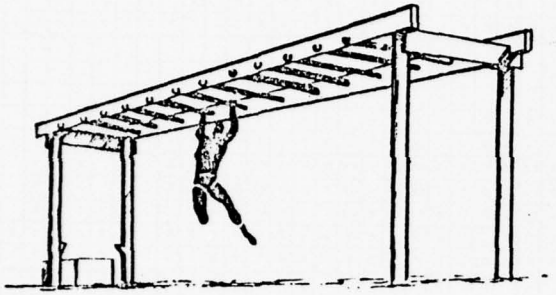
See Tables 4 - 6, for a description of the events required in this test and the score tables deliniating the standards required for each event. A total of 300 points with at least 60 points on each event is required to pass this test.[17]

16 U.S. Army, Physical Readiness Training, FM 21-20, (30 March 1973), 7.

17 U.S. Army, Physical Readiness Training, 226-228.

1 INVERTED CRAWL

2 RUN, DODGE & JUMP



3 HORIZONTAL LADDER

4 BENT LEG SITUP

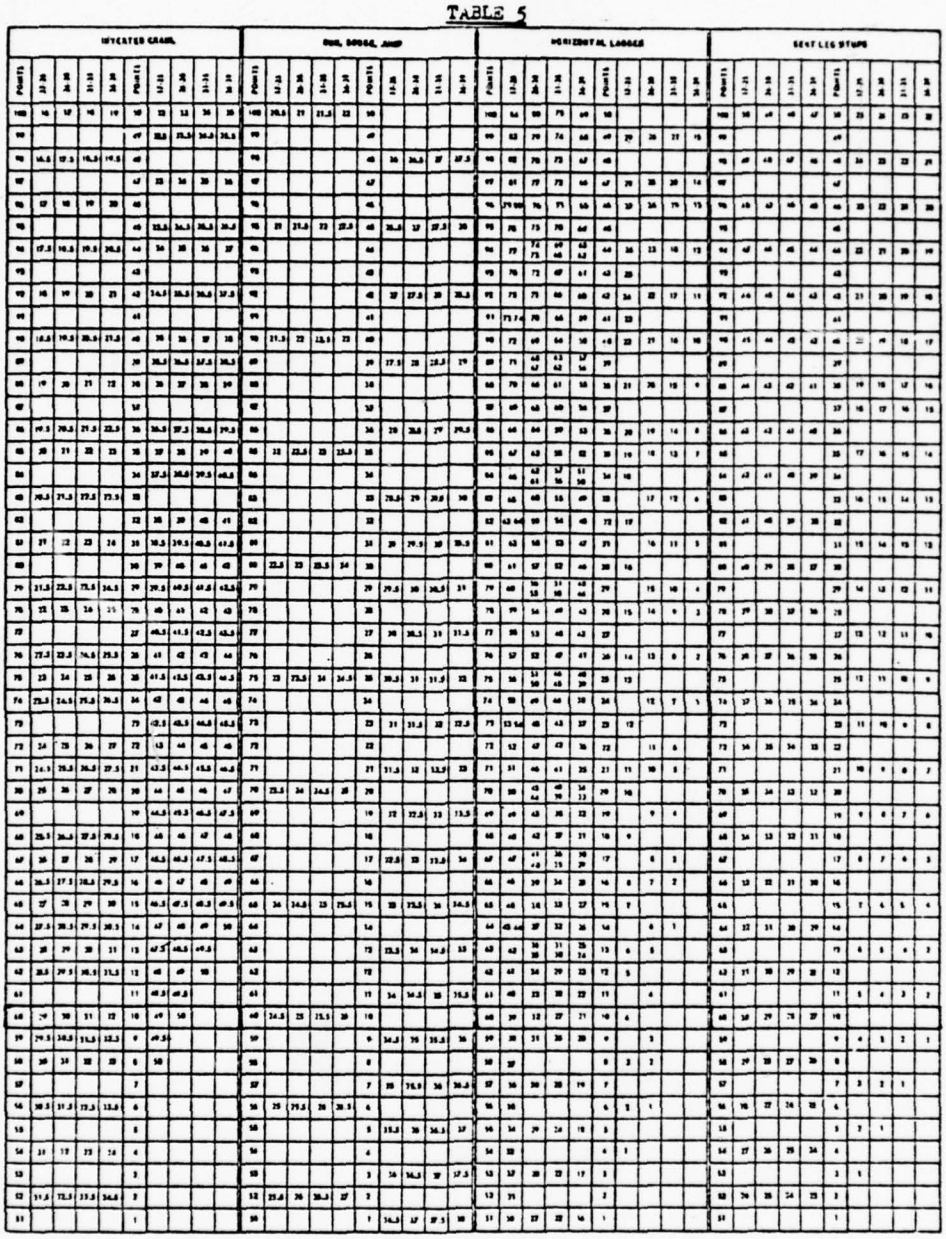
5 TWO-MILE RUN

Figure 118. The advanced physical fitness test.

TABLE 4

2-15

TABLE 5



1 First four events

*Figure 119.*① *Score table, advanced physical fitness test.*

2-16

TABLE 6

AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS				
17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME	17-25	26-30	31-35	36-39	TIME
100				16 56-16 61	80	81	82	83	16 57-17 05	60	61	62	63	20 33-20 33	40	41	42	43	23 37-23 49	20	21	22	23	29 37-29
99	100			16 62-16 68	79	80	81	82	17 06-17 14	59	60	61	62	20 34-20 44	39	40	41	42	23 50-23 54	19	20	21	22	29 38-29
98	99	100		16 69-16 55	78	79	80	81	17 15-17 23	58	59	60	61	20 45-20 55	38	39	40	41	23 55-24 03	18	19	20	21	29 39-29
97	98	99	100	16 56-15 02	77	78	79	80	17 24-17 32	57	58	59	60	20 56-21 06	37	38	39	40	24 04-24 12	17	18	19	20	27 01-27
96	97	98	99	15 03-15 09	76	77	78	79	17 33-17 41	56	57	58	59	21 07-21 17	36	37	38	39	24 13-24 21	16	17	18	19	27 13-27
95	96	97	98	15 10-15 16	75	76	77	78	17 42-17 50	55	56	57	58	21 18-21 28	35	36	37	38	24 22-24 30	15	16	17	18	27 22-27
94	95	96	97	15 17-15 23	74	75	76	77	17 51-17 59	54	55	56	57	21 29-21 39	34	35	36	37	24 31-24 39	14	15	16	17	27 31-27
93	94	95	96	15 24-15 30	73	74	75	76	18 00-18 10	53	54	55	56	21 40-21 48	33	34	35	36	24 40-24 48	13	14	15	16	27 40-27
92	93	94	95	15 31-15 37	72	73	74	75	18 11-18 21	52	53	54	55	21 49-21 57	32	33	34	35	24 49-24 57	12	13	14	15	27 49-27
91	92	93	94	15 38-15 44	71	72	73	74	18 22-18 32	51	52	53	54	21 58-22 06	31	32	33	34	24 58-25 06	11	12	13	14	27 58-28
90	91	92	93	15 45-15 51	70	71	72	73	18 33-18 43	50	51	52	53	22 07-22 15	30	31	32	33	25 07-25 15	10	11	12	13	28 07-28
89	90	91	92	15 52-15 58	69	70	71	72	18 44-18 54	49	50	51	52	22 16-22 24	29	30	31	32	25 16-25 24	9	10	11	12	28 16-28
88	89	90	91	15 59-16 05	68	69	70	71	18 55-19 05	48	49	50	51	22 25-22 33	28	29	30	31	25 25-25 33	8	9	10	11	28 25-28
87	88	89	90	16 06-16 12	67	68	69	70	19 06-19 16	47	48	49	50	22 34-22 42	27	28	29	30	25 34-25 42	7	8	9	10	28 34-28
86	87	88	89	16 13-16 19	66	67	68	69	19 17-19 27	46	47	48	49	22 43-22 51	26	27	28	29	25 43-25 51	6	7	8	9	28 43-28
85	86	87	88	16 20-16 26	65	66	67	68	19 28-19 38	45	46	47	48	22 52-23 00	25	26	27	28	25 52-26 00	5	6	7	8	28 52-28
84	85	86	87	16 27-16 33	64	65	66	67	19 39-19 49	44	45	46	47	23 01-23 09	24	25	26	27	26 01-26 09	4	5	6	7	28 58-29
83	84	85	86	16 34-16 40	63	64	65	66	19 50-20 00	43	44	45	46	23 10-23 18	23	24	25	26	26 10-26 18	3	4	5	6	29 06-29
82	83	84	85	16 41-16 47	62	63	64	65	20 01-20 11	42	43	44	45	23 19-23 27	22	23	24	25	26 19-26 27	2	3	4	5	29 17-29
81	82	83	84	16 48-16 54	61	62	63	64	20 12-20 22	41	42	43	44	23 28-23 36	21	22	23	24	26 28-26 36	1	2	3	4	29 26-29
																					1	2	3	29 34-29
																						1	2	29 44-29
																							1	29 52-30

FM 21-20
Pg 230

2 Two-mile run

Figure 118(2)—continued.

II. Staff and Specialist Physical Fitness Test:

This test is administered to service school students and faculty, and personnel in TDA or Combat Service Support units. The test consists of the following events:

a. Pushups
b. Run, Dodge & Jump
c. Horizontal Ladder
d. Bent Leg Sit-Up
e. One-Mile Run

See Tables 7-9 for a diagram of the events required in this test and the score tables deliniating the standards required for each event. A total of 300 points is required to pass this test but, unlike the Advanced Physical Fitness Test, there is no requirement to achieve a minimum of 60 points on each event.[18]

There are five other tests (1) The Basic Physical Fitness Test (administered to Basic Combat Trainees), (2) The Inclement Weather/Limited Facility Physical Fitness Test, (3) The Minimum Physical Fitness Test (Voluntary) (administered voluntarly to personnel over 40 years of age), (4) The Airborne Trainee Physical Fitness Qualification Test, and (5) The Ranger/Special Forces Physical Fitness Qualification Test. These tests are so highly specialized and taken by so few Army personnel that they were deemed irrelevant to this study and will not be described further.[19]

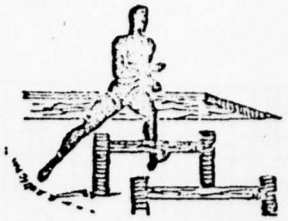
---

18 Physical Readiness Training, 236-240.

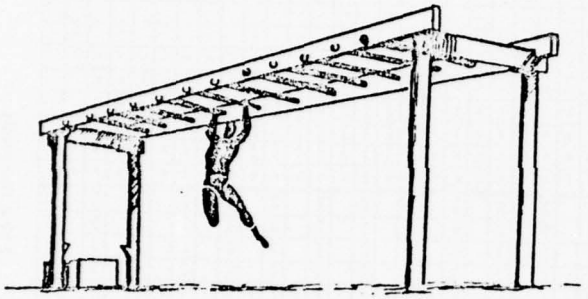
19 Physical Readiness Training, 6-7.

FM 21-20
Pg 238

1 PUSHUPS



2 RUN, DODGE & JUMP



3 HORIZONTAL LADDER

4 BENT LEG SITUP

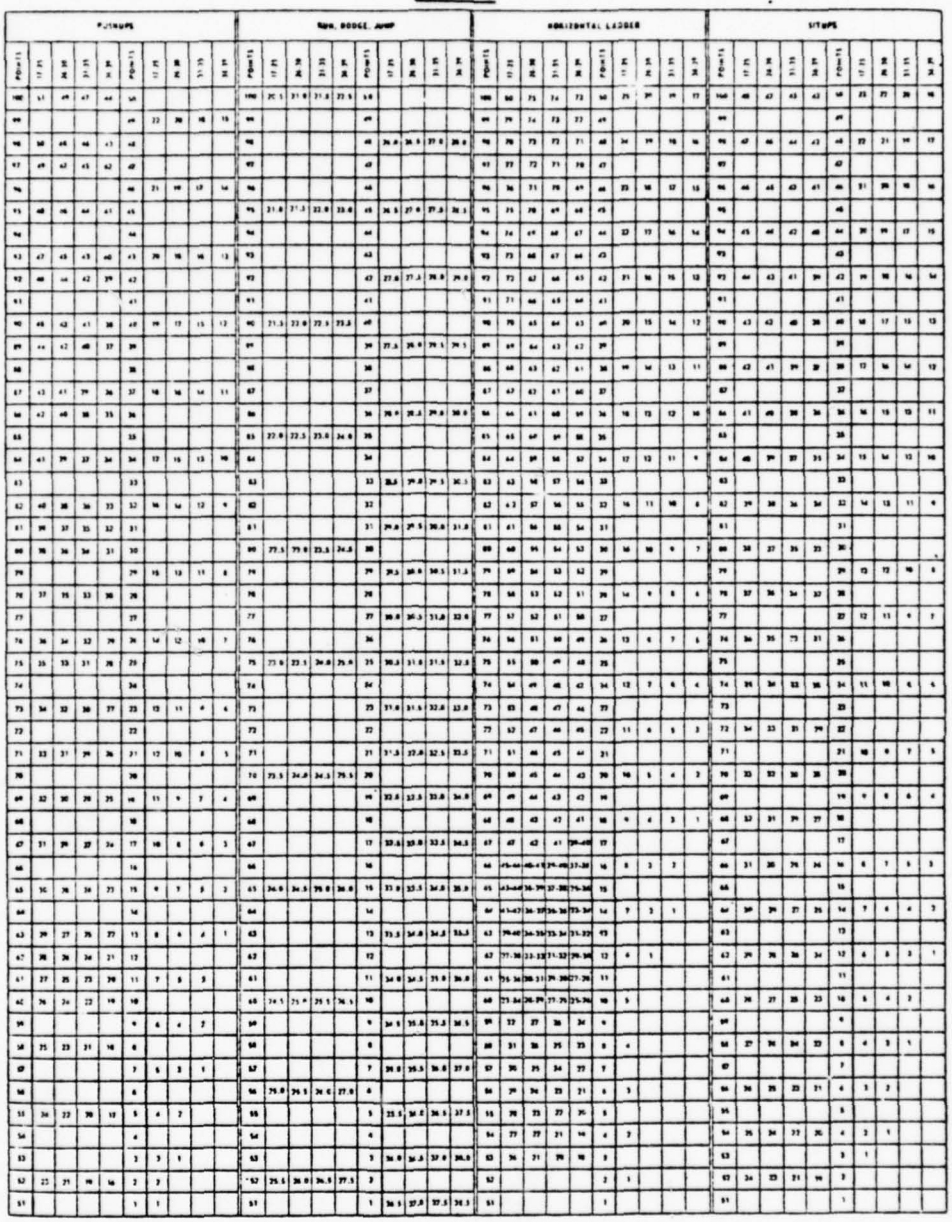
5 ONE-MILE RUN

Figure 125. Staff and specialist physical fitness test.

TABLE 7

2-19

TABLE 8



1 First four events

Figure 126.① Score table, staff and specialist physical fitness test.

TABLE 9

FM 21-20
Pg 240

AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS					AGE GROUP POINTS				
17-23	24-30	31-35	36-39	TIME	17-23	24-30	31-35	36-39	TIME	17-23	24-30	31-35	36-39	TIME	17-23	24-30	31-35	36-39	TIME	17-23	24-30	31-35	36-39	TIME
101				6:00-6:02	80	82	84	86	7:00-7:02	60	62	64	66	8:17-8:20	40	42	44	46	9:37-9:40	20	22	24	26	10:57-11:00
99				6:03-6:05	79	81	83	85	7:03-7:05	59	61	62	63	8:21-8:24	39	41	42	43	9:41-9:44	19	21	23	25	11:01-11:04
98	100			6:06-6:08	78	80	82	84	7:06-7:08	58	60	62	64	8:25-8:28	38	40	42	44	9:45-9:48	18	20	22	24	11:05-11:08
97	99			6:09-6:11	77	79	81	83	7:09-7:11	57	59	61	63	8:29-8:32	37	39	41	43	9:49-9:52	17	19	21	23	11:09-11:12
96	98	100		6:12-6:14	76	78	80	82	7:12-7:15	56	58	60	62	8:33-8:36	36	38	40	42	9:53-9:56	16	18	20	22	11:13-11:16
95	97	99		6:15-6:17	75	77	79	81	7:16-7:19	55	57	59	61	8:37-8:40	35	37	39	41	9:57-10:00	15	17	19	21	11:17-11:20
94	96	98	100	6:18-6:20	74	76	78	80	7:20-7:23	54	56	58	60	8:41-8:44	34	36	38	40	10:01-10:04	14	16	18	20	11:21-11:24
93	95	97	99	6:21-6:23	73	75	77	79	7:24-7:28	53	55	57	59	8:45-8:48	33	35	37	39	10:05-10:08	13	15	17	19	11:25-11:28
92	94	96	98	6:24-6:26	72	74	76	78	7:29-7:32	52	54	56	58	8:49-8:52	32	34	36	38	10:09-10:12	12	14	16	18	11:29-11:32
91	93	95	97	6:27-6:29	71	73	75	77	7:33-7:36	51	53	55	57	8:53-8:56	31	33	35	37	10:13-10:16	11	13	15	17	11:33-11:36
90	92	94	96	6:30-6:32	70	72	74	76	7:37-7:40	50	52	54	56	8:57-9:00	30	32	34	36	10:17-10:20	10	12	14	16	11:37-11:40
89	91	93	95	6:33-6:35	69	71	73	75	7:41-7:44	49	51	53	55	9:01-9:04	29	31	33	35	10:21-10:24	9	11	13	15	11:41-11:44
88	90	92	94	6:36-6:38	68	70	72	74	7:45-7:48	48	50	52	54	9:05-9:08	28	30	32	34	10:25-10:28	8	10	12	14	11:45-11:48
87	89	91	93	6:39-6:41	67	69	71	73	7:49-7:52	47	49	51	53	9:09-9:12	27	29	31	33	10:29-10:32	7	9	11	13	11:49-11:52
86	88	90	92	6:42-6:44	66	68	70	72	7:53-7:56	46	48	50	52	9:13-9:16	26	28	30	32	10:33-10:36	6	8	10	12	11:53-11:56
85	87	89	91	6:45-6:47	65	67	69	71	7:57-8:00	45	47	49	51	9:17-9:20	25	27	29	31	10:37-10:40	5	7	9	11	11:57-12:00
84	86	88	90	6:48-6:50	64	66	68	70	8:01-8:04	44	46	48	50	9:21-9:24	24	26	28	30	10:41-10:44	4	6	8	10	12:01-12:04
83	85	87	89	6:51-6:53	63	65	67	69	8:05-8:08	43	45	47	49	9:25-9:28	23	25	27	29	10:45-10:48	3	5	7	9	12:05-12:08
82	84	86	88	6:54-6:56	62	64	66	68	8:09-8:12	42	44	46	48	9:29-9:32	22	24	26	28	10:49-10:52	2	4	6	8	12:09-12:12
81	83	85	87	6:57-6:59	61	63	65	67	8:13-8:16	41	43	45	47	9:33-9:36	21	23	25	27	10:53-10:56	1	3	5	7	12:13-12:16
																					2	4	6	12:17-12:20
																					1	3	5	12:21-12:24
																						2	4	12:25-12:28
																						1	3	12:29-12:32
																							2	12:33-12:36
																							1	12:37-12:40

2 One-mile run

Figure 126(2)—continued.

Individual unit commanders are charged with the responsibility to conduct appropriate testing of military personnel at least twice annually to evaluate the unit's physical training program. It is obvious that the Advanced Test is much more rigorous than the Staff & Specialist Test but which test is administered to an individual is determined by the type of unit he is assigned to not by his MOS. Therefore, a medic assigned to a medical facility would be required to complete the Staff & Specialist Physical Fitness Test but if he were to be reassigned to the medical platoon of an Infantry battalion he would immediately be eligible to take the much more demanding Advanced Physical Fitness Test.

It is recommended by FM 21-20 that personnel who fail to attain the minimum standards for the appropriate test be given remedial training and retested. "Appropriate personnel actions or reclassification actions should be considered for personnel who demonstrate a physical ineptness."[20]

Both these tests are generalized tests for all Army personnel and are duty position rather than MOS related. Further complicating this is the fact that for Skill Qualification Testing (SQT) purposes, all personnel with the 12B MOS are required to take the Advanced Test as part of the "performance certification" portion. But, an individual may still verify his 12B MOS without passing the APFT and still meet all other regulatory physical fitness requirements by passing the Staff

---

20 Physical Readiness Training, 7.

& Specialist Test if he is assigned to a TDA or Combat Service Support unit.[21]

Physical Fitness Training for Women FM 35-20

AR 600-9 and AR 350-1, also directs the periodic physical readiness testing of female personnel. FM 35-20 is the publication that governs the Army physical readiness program for women. Although the objectives for the female program are identical to those of the male program, FM 35-20 does not appear to emphasize physical fitness to the same degree as FM 21-20.

There are four Army Physical Fitness Evaluation Tests applicable to all segments of the female population and designed to measure physical fitness. Only two of the tests are applicable to this study and will be explained in detail.

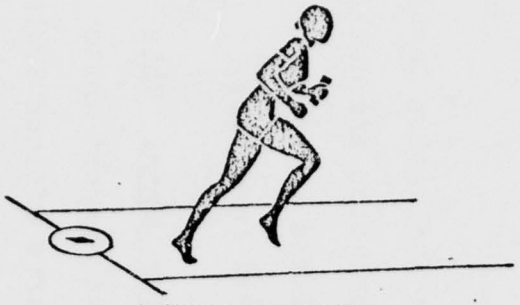
I. Advanced Physical Fitness Test for Women: This test is administered in TOE Combat and Combat Support units and to Advanced Individual Training and Reserve Officer Training Corps students. The test consists of the following events:

a. 80-Meter Shuttle Run
b. Modified Pushups
c. Run, Dodge & Jump
d. Modified Sit-Ups
e. One-Mile Run

Table 10 contains a diagram of the events required in the test and Table 11 is the score tables deliniating the standards

---

21 U.S. Army, Combat Engineer, MOS 12B Skill Levels 1 and 2, Soldier's Manual, FM 5-12B1/2,(29 September 1977), 2-235.



1. 80-METER SHUTTLE RUN

2. MODIFIED PUSHUPS

3. RUN, DODGE & JUMP

4. MODIFIED SITUPS

5. ONE-MILE RUN

Figure 91. Advanced physical fitness test for women.

XXXXX

2-24

ADVANCED PHYSICAL FITNESS TEST FOR WOMEN

POINTS	SHUTTLE RUN	PUSHUPS	RUN, DODGE & JUMP	SITUPS	ONE MILE RUN	POINTS	SHUTTLE RUN	PUSHUPS	RUN, DODGE & JUMP	SITUPS	ONE MILE RUN	POINTS	SHUTTLE RUN	PUSHUPS	RUN, DODGE & JUMP	SITUPS	ONE MILE RUN	POINTS	SHUTTLE RUN	PUSHUPS	RUN, DODGE & JUMP	SITUPS	ONE MILE RUN	POINTS	SHUTTLE RUN	PUSHUPS	RUN, DODGE & JUMP	SITUPS	ONE MILE RUN
100	21	42	21	44	7:30 – 7:34	80	24	31		34	9:10–9:14	60	26.5	18	27.5	20	10:45 – 10:47	40	29.5			14	11:26–11:27	20	33				12:10–12:12
99					7:35–7:39	79			25	33	9:15 – 9:19	59					10:48 – 10:49	39		11	30.5		11:28 –11:29	19		6	35		12:13–12:15
98		41	21.5	43	7:40 – 7:44	78		30			9:20 – 9:24	58					10:50 – 10:51	38					11:30–11:31	18				7	12:16–12:18
97	21.5				7:45 – 7:49	77				32	9:25 – 9:29	57	27	17			10:52 – 10:53	37	30		31	13	11:32 –11:33	17	33.5		35.5		12:19–12:21
96		40	22	42	7:50 – 7:54	76	24.5	29		31	9:30 – 9:34	56				19	10:54 – 10:55	36					11:34–11:35	16				6	12:22–12:23
95					7:55 – 7:59	75		28	25.5		9:35 – 9:39	55			28		10:56 – 10:57	35		10	31.5		11:36– 11:37	15		5	36		12:24–12:26
94	22	39		41	8:00 –8:04	74				30	9:40 – 9:44	54	27.5	16			10:58 –10:59	34	30.5			12	11:38 –11:39	14	34			5	12:27–12:29
93			22.5		8:05 –8:09	73		27		29	9:45 – 9:49	53				18	11:00 –11:01	33			32		11:40–11:41	13			36.5		12:30–12:32
92		38		40	8:10 –8:14	72	25	26			9:50 – 9:54	52					11:02 – 11:03	32					11:42 11:43	12				4	12:33–12:35
91	22.5				8:15 –8:19	71			26	28	9:55 – 9:59	51	28	15			11:04 – 11:05	31	31	9	32.5		11:44–11:45	11	34.5	4	37		12:36–12:37
90		37	23	39	8:20 –8:24	70		25		27	10:00 – 10:04	50			28.5	17	11:06 – 11:07	30				11	11:46–11:47	10					12:38–12:39
89					8:25 – 8:29	69		24			10:05 – 10:09	49					11:08 –11:09	29			33		11:48–11:49	9			37.5		12:40–12:41
88	23	36		38	8:30 – 8:34	68	25.5			26	10:10 – 10:14	48	28.5	14			11:10– 11:11	28	31.5				11:50–11:51	8	35			3	12:42–12:44
87			23.5		8:35 – 8:39	67		23	26.5	25	10:15 – 10:19	47				16	11:12– 11:13	27		8		10	11:52–11:53	7		3			12:45–12:47
86		35		37	8:40 – 8:44	66		22			10:20 – 10:24	46			29		11:14 – 11: 15	26			33.5		11:54–11:55	6	35.5				12:48–12:50
85			24		8:45 – 8:49	65				24	10:25 – 10:29	45		13			11:16 –11:17	25	32				11:56–11:57	5		2	38	2	12:51–12:53
84	23.5	34		36	8:50 – 8:54	64	26	21	27	23	10:30 – 10:33	44	29			15	11:18 – 11:19	24				9	11:58–11:59	4	36				12:54–12:56
83		33			8:55 –8:59	63		20			10:34 –10:37	43			29.5		11:20 –11:21	23		7	34		12:00–12:03	3		1		1	12:57–12:59
82			24.5	35	9:00 – 9:04	62				22	10:38 – 10:40	42		12			11:22–11:23	22	32.5				12:04–12:06	2	36.5				13:00–13:04
81		32			9:05 – 9:09	61		19		21	10:41 – 10:44	41			30		11:24 –11:25	21			34.5	8	12:07–12:09	1	37		38.5		13:05–13:09

TABLE 11

Figure 92. Score table for advanced physical fitness test for women (locally reproduced).

2-25

2-25

required for each event. A total of 300 points with at least 60 points on each event is required to pass this test.[22]

II. Staff and Specialist Physical Fitness Test For Women: This test is required of all women assigned to TDA, Combat Service Support and Service School units. This test consists of the following events:

a. 80-Meter Shuttle Run
b. Modified Pushups
c. Run, Dodge & Jump
d. Modified Sit-Ups
e. Stationary Run

Table 12 contains a diagram of the events required in the test while Table 13 is the score table deliniating the standards required for each event. A total of 300 points is required to pass the test but, unlike the Advanced Physical Fitness Test for Women, there is no requirement to achieve a minimum of 60 points on each event. Although many of the events of the Advanced, and Staff and Specialist tests are identical, the scoring criteria is less rigorous.[23]

The Basic Physical Fitness Test for Women (administered to Basic Trainees) and the Airborne Trainee Physical Fitness Qualification Test for Women are the other two tests applicable to women, but will not be considered for this study.

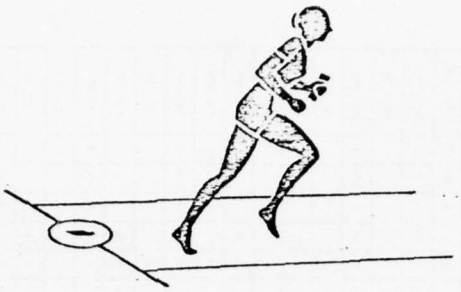
Although men and women are being assigned to some types of units as co-equals in identical MOSs, it is obvious

---

22 U.S. Army, Physical Fitness Training for Women, FM 35-20, (17 February 1975), 180-181.

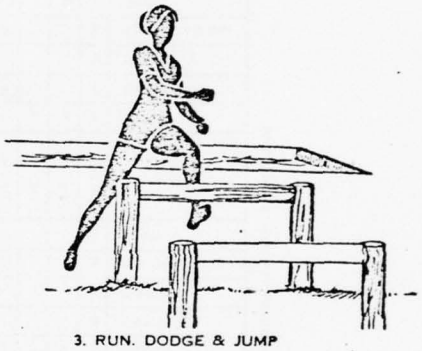
23 Physical Fitness Training for Women, 190-192.

TABLE 12



1. 80-METER SHUTTLE RUN

2. MODIFIED PUSHUPS



3. RUN, DODGE & JUMP

4. MODIFIED SITUPS

5. STATIONARY RUN

Figure 95. Staff and specialist physical fitness test for women.

TABLE 13

STAFF AND SPECIALIST PHYSICAL FITNESS TEST FOR WOMEN

POINTS	STATIONARY RUN	SITUPS	RUN, DODGE & JUMP	PUSHUPS	SHUTTLE RUN	POINTS	STATIONARY RUN	SITUPS	RUN, DODGE & JUMP	PUSHUPS	SHUTTLE RUN	POINTS	STATIONARY RUN	SITUPS	RUN, DODGE & JUMP	PUSHUPS	SHUTTLE RUN	POINTS	STATIONARY RUN	SITUPS	RUN, DODGE & JUMP	PUSHUPS	SHUTTLE RUN	POINTS	STATIONARY RUN
100	490 - 496	28	25.5	26	25	80	500 - 496	28				60		18		16	28	40		10		11	30	20	200 - 196
99	485 - 489					79	495 - 491					59						39		13				19	195 - 191
98	480 - 484			25		78	490 - 486		27	25		58						38						18	190 - 186
97	475 - 479		25.5		25.5	77	485 - 481		26			57			29.5			37		12.5		30.5	17	185 - 181
96	470 - 474	30		24		76	480 - 476	28		24		56		17		15		36		10				16	180 - 176
95	465 - 469					75	475 - 471				28.5	55	28.5					35		12				15	175 - 171
94	460 - 464	35	26.5	23	26	74	470 - 466	25		23		54						34				33	31	14	170 - 166
93	455 - 459					73	465 - 461					53			30			33						13	165 - 161
92	450 - 454	34		22	27	72	460 - 456	24		14		52		16				32		11	33.5	9		12	160 - 156
91	445 - 449		23.5	27	26.5	71	455 - 451		27			51					28.5	31	21.5					11	155 - 151
90	440 - 444	33		21		70	450 - 446	23		21	29	50	29					30			34			10	150 - 146
89	435 - 439					69	445 - 441					49			30.5			29		10				9	145 - 141
88	430 - 434	32	27.5	20	27	68	440 - 436	22		13		48		15				28	32		34.5	8		8	140 - 136
87	425 - 429					67	435 - 431					47						27		9				7	135 - 131
86	420 - 424	31		19		66	430 - 426	21				46		31				26						6	130 - 126
85	415 - 419		26		29.5	65	425 - 421		26			45	29.5					25	32.5		35			5	125 - 121
84	410 - 414	30		18	27.5	64	420 - 416	20		12		44				7		24						4	120 - 116
83	405 - 409					63	415 - 411				31.5	43						23		8	35.5		37	3	115 - 111
82	400 - 404	29	25.5	17	28	62	410 - 406	19				42		14				22	33					2	110 - 106
81	395 - 399					61	405 - 401					41						21						1	105 - 101

Figure 9K. Score table for staff and specialist physical fitness test for women (locally reproduced).

that there is a wide disparity in the levels of fitness required between them. For example, a women with an ammunition handlers MOS assigned to a DS/GS Ammunition Battalion would be expected to perform the same type and amount of manual labor as her male counterpart. If each is expected to perform at the same level of efficiency, a common physical fitness standard should apply. Additionally, the current physical fitness standard measures only physical strength in relation to body weight. For example, a 70 inch, 123 pound individual may be able to negotiate a sufficient number of horizontal bars to pass a physical fitness test but still not be capable of performing the 96 pound Bailey Panel carry. Conversely, a 70 inch, 192 pound individual may not be capable of passing the horizontal ladder postion of the test yet be capable of carrying 96 pounds. Although the Physical Fitness Evaluation Tests do serve a useful purpose, they do not measure strength required to perform MOS related duties. This strength requirement should be tested in another manner.

This chapter has examined various Army Regulations and publications in order to review the current regulatory standards of physical fitness and strength. The next chapter will address the other side of this issue by examining the applicable ARTEP and Soldier's Manual to select specific tasks to analyze. These selected tasks will be representative and will be analyzed in depth to determine quantifiable strength requirements.

CHAPTER III

ANALYSIS OF REPRESENTATIVE REQUIRED TASKS FOR ENGINEER MOS 12B

This chapter will examine representative tasks, extracted from the Combat Engineer Soldier's Manual (FM 5-12B1/2), The Engineer Battalion Mechanized and Armor Division, Army Training and Evaluation Program (ARTEP 5-145), and other documents in order to determine the body strength required to satisfactorily perform these tasks.

Soldier's Manuals are published in most of the Military Occupational Specialities and deliniate individual critical tasks a soldier must be able to perform effectively after training and with a minimum of supervision. These include tasks solely related to the 12B MOS such as "use and maintain hand tools", tasks common to all soldiers such as "first aid" and "maintenance of individual physical fitness", and "add-on" or "additional tasks" which are duty position related such as "Caliber .50 Machinegun Crewman" or "90MM RCLR Crewman."[1]

The ARTEP concentrates on collective tasks performed by squad, platoon, company or battalion echelon. Although these tasks are performed collectively by the echelon, the contribution of each individual is vital to the accomplishment of the task. These collective tasks generally, but not always,

---

1 U.S. Army, Combat Engineer, MOS 12B Skill Levels 1 and 2, Soldier's Manual, FM 5-12B1/2, (29 November 1977), 1-1, 1-3.

relate back to individual tasks listed in the Soldier's Manual. For example, ARTEP 5-145 Mission 9: Conduct Assault River Crossing, which is a collective mission to be performed at the platoon echelon, includes as a subtask "Operate Assault Boats." Soldier's Manual Task Number: 051-198-1001, lists "Operate a Pneumatic Assault Boat" as a Critical Individual Task.

Although the 12B Soldier's Manual lists 181 Critical Individual Tasks and ARTEP 5-145 includes a Consolidated Task Inventory of 191 collective tasks for 14 missions, only a representative sampling of tasks requiring excessive strength and endurance levels for different parts of the body have been selected to be addressed in detail. These tasks were selected because they represented tasks that required the greatest amount of strength or fitness to perform. Although other tasks, having similar requirements, could have been chosen, an analysis of them would have yielded similar conclusions. For instance, the requirement to "Move Under Direct Fire" (Task Number: 051-191-1403) requires the soldier to perform individual tasks with a similar strength and endurance requirement as the tasks contained in the requirement to "Move Over, Through, or Around Obstacles (Task Number: 051-191-1407). An analysis of both tasks would indicate that a soldier capable of performing the former task should be able to perform the latter as both have similar strength and endurance requirements.

Additionally, it should be noted that for Skill Qualification Testing (SQT) purposes all soldiers possessing the 12B MOS will be required to take the Advanced Physical Fitness Test (APFT) regardless of the type of unit to which he may be assigned. This appears to recognize that the degree of physical fitness required of a soldier should be a function of his MOS and not his unit of assignment.

I. OFFENSE: TASK NUMBER: 051-191-1403

TASK: Move Under Direct Fire

CONDITION: This task requires a soldier, armed with either his M16A1 rifle or M203 grenade launcher, to move 100 meters through a field. Utilizing the available cover and concealment he must traverse varied terrain and vegetation.

STANDARD: The soldier must move at least 100 meters to within 100 meters of an aggressor position without the aggressor being able to read a number affixed to the soldier's helmet. This task must be accomplished within 15 minutes and the aggressor is provided a "SCOPES" telescopic rifle sight. Being able to read the number on the soldier's helmet by use of this sight simulates acquiring and hitting the target.

DISCUSSION: This task requires the individual soldier to perform three movement techniques (High Crawl, Low Crawl and Rush) and recognize when each is appropriate. The High Crawl is a movement where the soldier keeps his body free of the ground and rests his weight on his forearms and knees. The rifle is cradled in the arms keeping the muzzle off the ground. He moves forward by alternately advancing the right

elbow and right knee, then left elbow and left knee. The Low Crawl is performed by maintaining the body as flat as possible to the ground. The rifle is held by the upper sling swivel, balanced on the forearm and drug along the ground. To Rush the soldier starts from the prone position, lowers his head, draws his arms in to his body and, keeping the elbows down pulls the right or left leg forward. With one movement, the body is raised by straightening the arms and springing to the feet. The soldier runs to his next position and, just before hitting the ground, plants both feet then falls forward, breaking the fall with the butt of the rifle. The rush should expose the soldier for no more than three seconds and the run should not be in a straight line.

This task could easily be simulated under administrative conditions by requiring a prospective 12B applicant to run through a 100 meter course; High Crawling the first 33 meters, Low Crawling the second 33 meters, and Rushing the final 34 meters hitting the ground every 3 seconds.

This task is common to all Combat Arms MOSs.[2]

II. DEFENSE: TASK NUMBER: 051-191-1364

TASK: Construct Individual Defensive Positions

CONDITION: This task requires a soldier to construct an

---

2 Combat Engineer, MOS 12B Skill Level 1 and 2, Soldier's Manual, 2-106 - 2-110.

individual defensive fighting position during daylight hours, given load bearing equipment with bayonet, scabbard, entrenching tool, poncho and M16A1 rifle. Four hours is allotted to complete construction.

STANDARD: Within the time specified the soldier must construct a "parapet foxhole" 1½ M16's long, 2 bayonets wide, armpit deep and providing a cave-like compartment (with overhead cover) big enough for the occupant to get under. Although the specifications include cover, concealment and other requirements, they do not add to the physical difficulty of the task.

DISCUSSION: An analysis of this task indicates that the basic strength requirement is for the soldier to possess the strength and stamina to dig a foxhole approximately 1½ meters long by 1 meter wide by 1½ meters deep, in undisturbed, moderately hard soil within a four hour period.[3] Although possible, this task would be extremely difficult to simulate under administrative testing conditions. In addition to being very time consuming, the necessary support could be prohibitive. Some type of prolonged endurance test could be devised to determine if a prospective 12B does possess the requisite endurance. An example of this type of test could be for the individual to swing a sledge hammer or mallet a specified number of times during a specified period.

---

3 Combat Engineer, MOS 12B Skill Levels 1 and 2, Soldier's Manual, 2-119 - 2-121.

III. HAND GRENADE TASK NUMBER: 051-191-1302

TASK: Engage Enemy with Hand Grenades

CONDITION: This task requires the soldier to complete two situations during daylight, in a field location, wearing load bearing equipment, helmet, and carrying an individual weapon and basic load. The first situation requires the soldier only to identify certain types of hand grenades but situation two requires engagement of three targets. Target one is dismounted troops at a range of 35 meters, target two is an enemy emplacement without overhead cover at 20 meters and target three is an enemy position with overhead cover which can be approached along a covered route.

STANDARD: Situation one is not applicable as it requires no physical activity. Situation two, target one requires the soldier to accurately throw a fragmentation grenade 35 meters within five meters of the center. Target two requires a soldier to throw a fragmentation grenade 20 meters inside a position. Target three requires a soldier to approach a covered position along a concealed route and throw either a fragmentation or offensive grenade inside the inclosure without exposing himself for over three seconds.

DISCUSSION: This task is extremely easy to analyze. For initial testing, complete accuracy is not necessary but the prospective 12B should be able to throw the hand grenade the required 35 meters. This task can be easily simulated under administrative testing conditions by having the applicant throw a baseball or training fragmentation grenade

35 meters. There should be no requirement to test either situation one or the other two targets.[4]

IV. ENGINEER TOOLS TASK NUMBER: 051-201-1001

TASK: Use and Maintain Handtools

CONDITION: The soldier must be able to use the various tools and cleaning equipment common to Engineer unit TO&Es.

STANDARD: The soldier must utilize the proper procedures and techniques in using and maintaining engineer handtools. These handtools include: hammer, maul, sledge hammer, screwdriver, half hatchet, axe, hand saw (crosscut, ripsaw, and two man crosscut), drill, pick, pick-mattock, shovel, post-hole digger, and earth auger.

DISCUSSION: This task contains some of the most physically strenuous activities required by the 12B MOS. Most taxing is the use of the maul, 10 pound sledge hammer, axe and shovel. Although the Soldier's Manual deliniates no specific degree of use for each of these handtools, a general administrative strength test could combine this task with other tasks requiring similar motion such as "constructing individual defensive positions." A simple time-motion study could correlate the strength, endurance, coordination and time associated with preparing a fighting position with an entrenching tool and using a maul or sledge hammer for a specific amount of time. In this manner one test may suffice to ensure that the prospective 12B possesses sufficient capability to perform

---

4 Combat Engineer, MOS 12B Skill Levels 1 and 2, Soldier's Manual, 2-10 - 2-17.

all similar tasks.[5]

V. ENGINEER TOOLS TASK NUMBER: 051-201-1003

TASK: Use and Maintain Pneumatic Tools

CONDITION: This task requires a soldier to utilize the 250 cubic foot per minute compressor with all accessories.

STANDARD: The soldier must be able to use and maintain pneumatic tools to safely accomplish specific tasks. These pneumatic tools include the paving breaker (jack-hammer), nail driver, circular saw (woodworking), chain saw, wood-boring drill, backfill tamper, concrete vibrator and other tools and accessories.

DISCUSSION: The two most physically demanding tools included in the pneumatic tool set are the paving breaker and chain saw. Each weighs in excess of 60 pounds and is extremely difficult to manipulate while using. Although the chain saw is normally operated by two men, operating the paving breaker is a single man task. The Soldier's Manual does not specify any specific tasks to be performed with the tools other than the general term "accomplish assigned construction tasks." From experience, the majority of strength needed to operate the paving breaker is required to manuever it into position, not while it is in operation. While in operation, the operator must apply only enough pressure to keep it in place. This task could be simulated under administrative test conditions by requiring the prospective 12B to suspend a 60 pound weight in his arms for a specified period of time. The physical

5 Combat Engineer, MOS 12B Skill Levels 1 and 2, Soldier's Manual, 2-236 - 2-244.

requirements necessary in handling pneumatic tools are almost identical to those required to use electrical handtools.[6]

VI. FIXED BRIDGING TASK NUMBER: 051-197-1002

ARTEP TASK: 8-10

TASK: Construct 25 meters (80 feet) Double-Lane Bailey Bridge

CONDITION: With at least 45 men available for actual work, during light and with favorable weather conditions and with materials unloaded on site with the site already prepared.

STANDARD: The 45 available soldiers must, within seven hours, layout the bridge site, assemble bays, launch the bridge, mount the bridge on bearing plates, and construct end ramps. Wear tread need not be included.

DISCUSSION: Although this is an ARTEP collective task, the individual strength requirements per man can be determined. The most physically demanding subtask is the 6 man carry of the 577 pound Bailey panel. Each individual in the crew is required to carry in excess of 96 pounds for each panel carried so a bridge, double-single, constructed to 80 feet would require 44 panels (32 for the bridge and 12 for the launching nose). Therefore, to successfully accomplish this mission each member of the panel crew would have to carry 96 pounds 44 times.[7] Additionally, a review of the 50 ton

---

6 Combat Engineer, MOS 12B Skill Levels 1 and 2, Soldier's Manual, 2-248 - 2-252.

7 This is an ARTEP requirement while the Bailey Bridge example on page 1-5 represents an operational mission . This accounts for the different number of repititions of the carry required.

and 60-ton Universal Trestle Bridge components and the M4T6 Float Bridge reveals no single individual tasks are more demanding than the Bailey Bridge task. Also, the support requirements allowed in the assembly of the M4T6 includes use of helicopter assets for lifting. This task could easily be simulated under administrative test conditions by requiring the prospective 12B applicant to carry a 96 pound weight over a specified course 44 times.[8]

Although it is recognized that the Bailey Bridge is being phased out of the system, large quantities will remain in the inventory for many years. Because of its dependability and availability, 12B soldiers will have a requirement to work with the Bailey Bridge for the foreseeable future. As the Bailey Bridge requirement is still in both the ARTEP and 12B Soldier's Manual, it remains current. Additionally, as multiple man carries are based on the 100 pounds per man standard, the requirement for the 12B soldier to be able to lift and carry this amount of weight is independent of the Bailey Bridge requirement.

---

8 U.S. Army, Army Training and Evaluation Program, Engineer Battalion Mechanized and Armor Division, ARTEP 5-145 (15 June 1978), 2-238.

CHAPTER IV

12B MOS ENGINEER STRENGTH, ENDURANCE AND PHYSICAL FITNESS SURVEY

METHODOLOGY

In order to reinforce conclusions drawn from other research sources, a short survey was circulated to all Engineer members of the 1978-79 U.S. Army Command and General Staff College class. Of the 50 Engineer Officers (Primary Speciality Code 21) in the class, 39 responded to the questionnaire. While the sample is not truly random, it does represent almost 4.6% of the 835 Majors on active duty in the Corps of Engineers and .77% of all Engineer officers[1]. Additionally, the group possesses extensive troop experience with every responding officer having commanded at least one Engineer company. The officers also indicated they had additional troop experience and, by virtue of their attendance at C&GSC, their past success can be assumed.

SURVEY INSTRUMENT

An eleven question survey was developed in order to obtain quantitative data and validate the conclusions

---

1 Corps of Engineers Officers 1979 Directory, Periodic Publication Fund, Ft Belvoir, Va. There are 5085 CE officers on active duty as of 1 July 78.

drawn from other sources. It was assumed that Engineers in the class generally conformed to the biographical profile of the entire class so only one question of a biographical nature was necessary. The survey instrument included one biographical question, ten multiple choice opinion questions and a portion where the responding officer could provide a subjective response. The following is an analysis of each question and the responses received.[2]

ANALYSIS OF QUESTIONS AND RESPONSES

1. In what Engineer positions have you served?

a.	Enlisted, 12B MOS (5)	12.8%
b.	Platoon Leader (29)	74.4%
c.	Company Commander (39)	100%
d.	Battalion Staff (29)	74.4%
e.	Other (22)	56.4%

This question allowed multiple answers and it was apparent from the responses that the respondents possessed extensive first hand experience with troops. Therefore, the respondents appear extremely well qualified to comment on this particular subject.

2. Of the 12B MOS soldiers you have been associated with, what percentage are physically capable of performing the duties required of the 12B MOS?

a.	Less than 10% (1)	2.6%

---

2 Jacobs, T.O., A Guide for Developing Questionnaire Items, Technical Advisory Service, HumRRO Division 4, Fort Benning, GA, 21-23.

b. 10% - 39% (0) 0%

c. 40% - 60% (4) 10.3%

d. 61% - 90% (22) 56.4%

e. Greater than 90% (12) 30.8%

The responses to this question generally conformed with my previous experiences. Almost 70% of the respondents felt that 90% or less of the 12B MOS soldiers they had been associated with possessed the physical capacity to perform in the MOS. The responses to this question were compatible with the responses to question 11, but inconsistent with the responses to question 3.

3. The present strength and physical standards used for initial entry into service for the 12B MOS allows unqualified personnel to enter.

a. Strongly agree (2) 5.1%

b. Agree (10) 25.6%

c. Undecided (19) 48.7%

d. Disagree (8) 20.5%

e. Strongly agree (0) 0%

Over 48% of the respondents were undecided although 30.7% agreed that present standards were inadequate. One respondent who disagreed did so on the basis that the standards themselves were inadequate. Based on the responses to questions 2 and 9, it would be expected that more respondents would have selected responses "a" or "b".

4. The present Advanced Physical Fitness Test (APFT) adequately tests the level of physical fitness necessary to perform 12B duties.

a. Agree (16) 41.0%

b. Disagree - Too difficult or does not adequately test (5) 12.8%

c. Disagree - Not difficult enough (9) 23.1%

d. Undecided (9) 23.1%

A majority of the respondents that had an opinion agreed that the present APFT is adequate to test physical fitness. From margin notes and comments it appears that four respondents disagreed because they felt the test did not test the strength required to perform in the MOS. It should be noted that the APFT is designed as a fitness test and not a strength test. If these four responses are invalidated, then 45.6% of the valid responses indicate that the present test is adequate. Comments also indicate that all 12B personnel should be required to take the same test.

5. The tasks required by the 12B SQT and 12B Soldier's Manuals adequately reflect those tasks that a soldier must be physically capable of performing in order to satisfactorly perform in the 12B MOS.

a. Strongly agree (3) 7.7%

b. Agree (21) 53.8%

c. Undecided (12) 30.8%

d. Disagree (3) 7.7%

e. Strongly disagree (0) 0%

A clear majority of the respondents agreed that a 12B soldier had to be physically able to perform all soldier's manual and SQT tasks. The relative newness of

of both the soldier's manuals and SQT could explain the large number of undecided responses.

6. The stated secondary mission to perform as Infantry requires that the Engineer must at least maintain a physical standard as high as the Infantryman.

a.	Strongly agree (14)	35.9%
b.	Agree (18)	46.2%
c.	Undecided (2)	5.1%
d.	Disagree (5)	12.8%
e.	Strongly disagree (0)	0%

This is an integral mission of the Engineers so the high percentage of affirmative responses was expected. Many respondents even made margin notes that the Engineer mission, by its very nature, required higher physical standards than the Infantryman.

7. A 12B soldier must be capable of lifting how much weight?

a.	Less than 50 pounds (0)	0%
b.	50 - 75 pounds (3)	7.7%
c.	75 - 100 pounds (20)	51.3%
d.	100 - 150 pounds (13)	33.3%
e.	Over 150 pounds (3)	7.7%

Responses and margin notes indicated that being able to lift 100 pounds was by far the consensus opinion. The Bailey Bridge panel weight and the fact that all multiple man carried are based on the 100 pounds per man standard were often mentioned and explains why this was the popular response.

8. A 12B soldier should be capable of Force Marching what distance?

a. Less than 2 miles (0) 0%

b. 4 miles in one hour (2) 5.1%

c. 8 miles (7) 17.9%

d. 12 miles in 3 hours (26) 66.7%

e. Undecided (4) 10.3%

The overwhelming majority chose response "d", possibly because this is the standard required for award of the "Expert Infantryman's Badge." Additionally, response "b", the standard for National Guard personnel was overwhelmingly rejected.

9. It is not necessary that all 12B soldiers be physically capable of performing all required tasks because other stronger squad members can "take up the slack" for them.

a. Strongly agree (1) 2.6%

b. Agree (3) 7.7%

c. Undecided (3) 7.7%

d. Disagree (21) 53.8%

e. Strongly disagree (11) 28.2%

Over 82% of the respondents indicated, as expected, that all Engineers must be able to perform all required tasks. This opinion, when considered in conjunction with question 2, where 70% of the respondents believed that 10% or more of the 12B personnel are physically unqualified to perform all required tasks strongly supports the contention of this thesis that quantifiable physical capability standards have to be developed and applied in the initial recruitment and classification process.

10. The 12B MOS should not be restricted to males only but rather should be open to all personnel who demonstrate that they are physically capable of performing the required tasks.

a.	Strongly agree (8)	20.5%
b.	Agree (14)	35.9%
c.	Undecided (3)	7.7%
d.	Disagree (5)	12.8%
e.	Strongly disagree (9)	23.1%

Respondents were most sharply divided on this question. Many of those who disagreed made margin notes concerning the 11B Infantry requirement and it was apparent that many respondents were emotional on the subject of integrating the 12B MOS with women. No definitive conclusions can be drawn from these responses. The decision to fully integrate combat arms MOSs will most likely be political and will be precipitated by court actions, political pressures and the necessity to attract "bodies" to these MOSs.

11. Personnel entering the service should be required to take an initial test to demonstrate they possess the requisite physical strength and fitness before they are trained and assigned in the 12B MOS.

a.	Strongly agree (8)	20.5%
b.	Agree (17)	43.6%
c.	Undecided (4)	10.3%
d.	Disagree (8)	20.5%
e.	Strongly disagree (2)	5.1%

Here again, the responses were expected and consistent with responses to previous questions. From margin notes, 5 people who responded with "c", "d" or "e" actually suppcrted the idea of strength testing but believe it should apply to all MOSs or that the trainee should be tested prior to award of the 12B MOS rather than prior to training. With this taken into consideration, almost 77% of the respondents agree that some physical testing mechanism is needed so that unqualified individuals are identified prior to assignment to units.

SUBJECTIVE RESPONSES

Although almost every respondent made some margin comments, 12 officers or 31% wrote subjective comments in the space provided. Some of the more valid and frequest comments were:

a. There should be an "entry level" fitness requirement with the trainee being brought up to the ultimately desired level before completing training.

b. The increased physical fitness and strength needed to participate in the "Active Defense" will greatly increase the required levels of fitness and stamina for 12B Engineers. Additionally, 12B work in combat almost always degenerates to "muscle power."

c. It is very difficult to perform testing of this nature at an Armed Forces Entrance Examination Station so it is very important not to confuse desired processes with feasible activities. Additionally, if a testing plan were introduced there would be a major shortfall of 12B soldiers.

CONCLUSION

This survey served to reinforce most of the conclusions derived from other independent research of Army publications, regulations and other sources. The survey population was Engineer officers in the grade of Major attending the 1978-79 Command and General Staff College Class at Fort Leavenworth, Kansas. The responses were generally consistent and conformed to previously drawn conclusions. The consensus opinions can be reduced to the following statements:

a. The 12B MOS presently contains many physically unqualified personnel.

b. The present Advanced Physical Fitness Test (APFT) is adequate but that all 12B personnel should be required to take the same physical fitness test.

c. All 12B MOS personnel must be physically capable of performing the tasks contained in the 12B Skill Qualification Test and 12B Soldier's Manual, and the assumption that stronger squad members can perform the more physically demanding tasks for weaker members is invalid.

d. A 12B soldier must be capable of lifting approximately 100 pounds.

e. A 12B soldier must be capable of Force Marching 12 miles in 3 hours.

f. There is a requirement to develop a physical testing mechanism so that physically unqualified individuals are identified prior to assignment to 12B MOS positions.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

This thesis has investigated the acceptable standards of body strength, physical stamina, endurance and physical fitness required for satisfactory performance in the 12B MOS. This has been accomplished through an analysis of the current standards as articulated in the applicable Army Regulations and an examination of the performance requirements contained in the 12B Soldier's Manual and Engineer ARTEP. Additionally, the conclusions drawn were reinforced by a survey conducted at the Command and General Staff College.

From the analysis of the current Army Regulations, it is apparent that the present standards are either nonexistent or so ambiguous as to be useless. With an attrition rate of over forty percent for new enlistees and reclassification authority in some instances delegated down to battalion level, an examination of alternative initial entry standards is warranted. From the summary of the 12B Engineer job description, it is obvious that this is a physically demanding specialty and requires outstanding levels of physical fitness and endurance. The present physical profile governing entry into the MOS is too vague

and generalized to be of use to a personnel manager assigning soldiers to the 12B MOS. For instance, the present standard requires "good muscular development ..." but does not define "good."

On the surface, the physical fitness and weight control programs appear well defined and sound, but deeper investigation reveals ambiguities and contradictions among many of these regulations. For example, the height and weight requirements for initial entry into service differ greatly from the in-service standards. The physical fitness testing program is highly selective and specialized with seven male tests and four female tests. Presently, which test is administered is a function of an individual's gender and unit of assignment rather than military occupation. Because of this, personnel in the same MOS, required to perform similar duties, may be unfairly required to maintain different standards of physical fitness.

The detailed examination of six representative tasks from the 12B Soldier's Manual and Engineer ARTEP resulted in the identification of specific strength and endurance requirements that could be simulated under test conditions. For example, the requirement to use pneumatic tools could be simulated by requiring an individual to suspend a 60 pound weight in his arms for a specific length of time.

The survey served to confirm and reinforce many of the conclusions drawn from other sources, as well as providing some perceptions held by experienced Engineer officers. Additionally, it was possible to gather other information from this subjective source.

RECAPITULATION OF CONCLUSIONS

The following is a recapitulation of the conclusions drawn from the different sources:

a. The 12B MOS presently oontains many physically unqualified personnel.

b. "The Physical Profile Functional Capacity Guide" contained in AR 40-501 and the Physical Profile for entry into the 12B MOS contained in AR 611-201 principally address medical fitness and are too vague to be useful.

c. The Army weight control program contains different entry and retention standards.

d. The physical fitness standards are discriminatory and require different levels of physical fitness based on duty position, unit of assignment or gender rather than MOS.

e. The present physical fitness test is adequate to test fitness but does not test strength (independent of proportional strength). Additionally, all 12B personnel should be administered the same Advanced Physical Fitness Test (APFT).

f. A 12B soldier must be capable of running through a 100 meter course simulating movement under direct fire: High Crawling the first 33 meters, Low Crawling the second 33 meters, and rushing the final 34 meters dropping to the ground every three seconds.

g. A 12B soldier must be physically capable of digging a "parapet foxhole" approximately 1 1/2 meters long by 1 meter wide by 1 1/2 meters deep.

h. A 12B soldier must possess the strength and coordination to throw a hand grenade 35 meters and land within 5 meters of a target, and to throw a hand grenade 20 meters landing inside a position.

i. A 12B soldier must be physically capable of using hand tools to include the hammer, 10 pound sledge hammer, axe, adz, hand saw (crosscut, ripsaw, and two-man cross cut), drill, pick, pick-mattock, shovel, posthole digger and earth auger.

j. A 12B soldier must be physically capable of using pneumatic tools organic to the 250 cubic foot per minute compressor. The pavement breaker is the heaviest item in the set.

k. A 12B soldier must be physically able to lift a 100 pound weight and carry it 25 feet, 44 times. This simulates Bailey Bridge construction.

l. A 12B soldier must be physically capable of Force Marching 12 miles in 3 hours.

m. All 12B MOS personnel must be physically capable of performing the tasks contained in the 12B SQT and 12B Soldier's Manual. The premise that stronger squad members can perform the more physically demanding tasks for weaker squad members is invalid.

n. There is a requirement to develop a physical testing mechanism so that physically unqualified personnel are identified prior to assignment to 12B positions.

RECOMMENDATIONS

Based on the conclusions drawn from this research, the following recommendations have been formulated:

a. The principal recommendation of this thesis is that Human Engineers from a HumRRO activity develop testing techniques to simulate the strength, endurance and stamina required to perform the tasks described in paragraphs f, g, h, i, j, k and l of Recapitulations of Conclusions, above. This development must be accomplished in coordination with the Army Recruiting Command in order to insure that it is feasible to perform the testing at an Armed Forces Entrance Examination Station. Development and adherence to these standards should result in a more effective screening process in which unqualified soldiers are identified and assigned to a more appropriate MOS prior to the training period.

b. The "Physical Profile Functional Capacity Guide" contained in AR 40-501 should be revised to provide specific and definitive physical fitness and strength guidance.

c. All height and weight charts contained in official publications should be standardized to reduce confusion.

d. Physical fitness standards should become a function of MOS rather than unit of assignment, gender or duty position.

AREAS FOR FURTHER STUDY

Although this study has been restricted to the 12B Combat Engineer MOS, the concept is applicable to all specialities. A total comprehensive study should be undertaken to evaluate the requirement for all MOSs and to develop standards.

The Combat Engineer is not a glamour MOS and, like all combat MOSs, presently is experiencing recruiting shortfalls. Incentives and inducements to attract qualified individuals into this physically demanding speciality have not been addressed in this study but do merit further consideration. A return to the draft, where large numbers of personnel would require classification would mandate these better defined standards.

BIBLIOGRAPHY

Abbott, Steve "Combat Engineers," SOLDIER (The Official U.S. Army Magazine), Vol. 33, No. 5 (May 1978), 10.

Brown, Harold Department of Defense Annual Report Fiscal Year 1979, Washington, D.C.: Government Printing Office, 1978, 330.

U.S. Army, The Army Physical Fitness and Weight Control Program, AR 600-9, Washington, D.C.: Government Printing Office, 1976, 2-1, 3-1, 3-2.

U.S. Army, Army Training and Evaluation Program (ARTEP), Engineer Battalion Mechanized and Armor Divisions, ARTEP 5-145, Washington, D.C.: Government Printing Office, 1978, 2-238.

U.S. Army, Combat Engineer, MOS 12 Skill Levels 1 and 2, Soldier's Manual, FM 5-12B1/2, Washington, D.C.: Government Printing Office, 1977, 1-1, 1-3, 2-106 to 2-110, 2-119 to 2-121, 2-235 to 2-244, 2-248 to 2-252.

U.S. Army, Engineer Combat Operations, FM 5-100, Washington, D.C.: Government Printing Office, 1978, iii (preface), D-1, D-2.

U.S. Army, Enlisted Career Management Fields and Military Occupational Specialities, AR 611-201, Washington, D.C.: Government Printing Office, 1978, 3-12-5 to 3-12-8.

U.S. Army, Enlisted Personnel Management System, AR 600-200, Washington, D.C.: Government Printing Office, 1978, 2-3, 2-10.

U.S. Army, Personnel Separations - Enlisted Personnel, AR 635-200, Washington, D.C.: Government Printing Office, 1977, 5-13 to 5-15.

U.S. Army, Physical Fitness Training for Women, FM 35-20, Washington, D.C.: Government Printing Office, 1975, 180 - 181, 190 - 192.

U.S. Army, Physical Readiness Training, FM 21-20, Washington, D.C.: Government Printing Office, 1973, 6-7, 226-228, 236-240.

U.S. Army, Regular Army Enlistment Program, AR 601-210, Washington, D.C.: Government Printing Office, 1972,4-2.

U.S. Army, Standards of Medical Fitness, AR 40-501, Washington, D.C.: Government Printing Office, 1960, Ch 2, A3-1.

Jacobs, T.O., "A Guide for Developing Questionnaire Items," Technical Advisory Service, Human Resources Research Organization (HumRRO) Number 4, Fort Benning, Georgia, 21-23.

U.S. Army Engineer School, Corps of Engineers Officers 1979 Directory, Periodic Publication Fund, Fort Belvoir, Virginia.